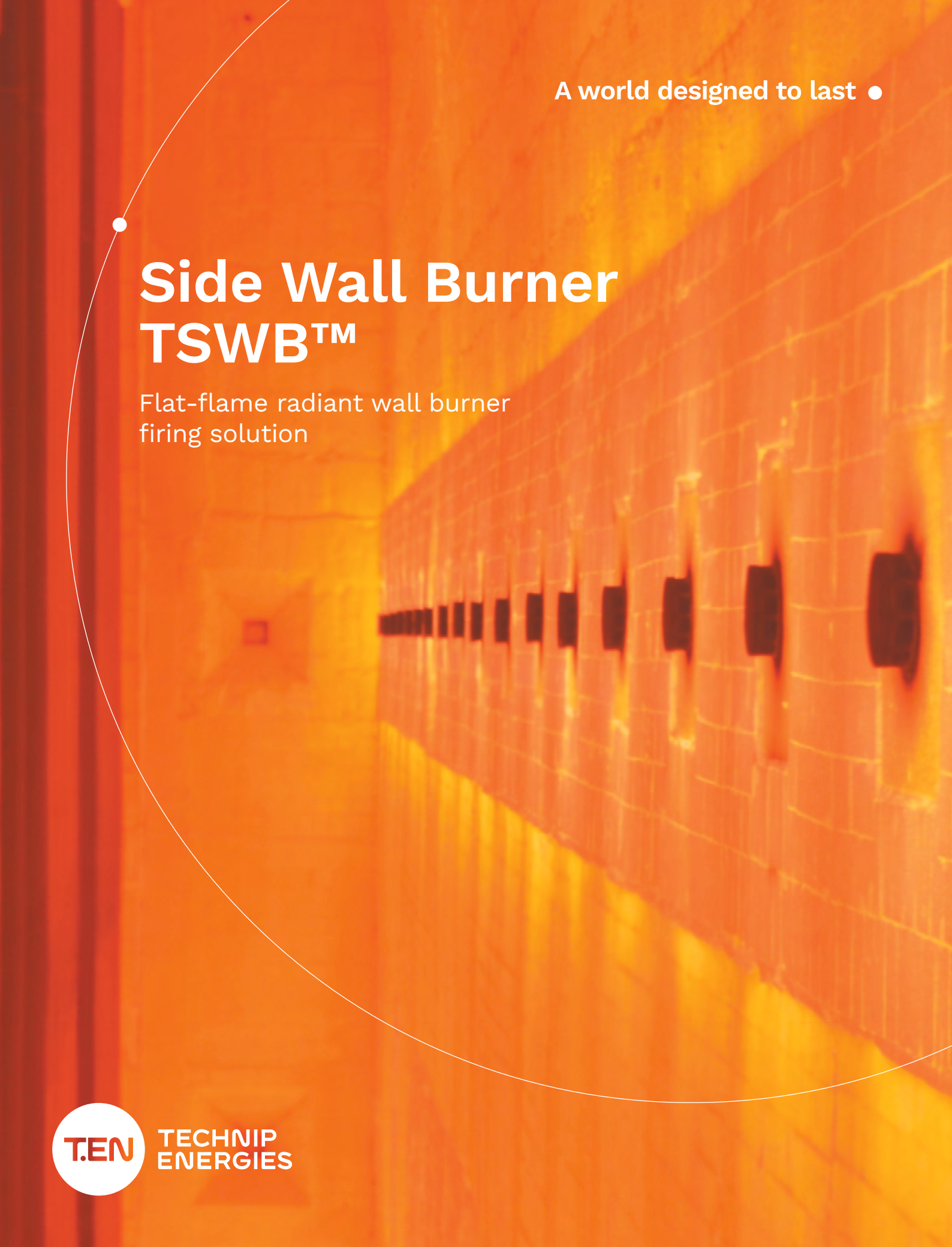
A world designed to last

Side Wall Burner TSWB™

Flat-flame radiant wall burner firing solution



TECHNIP ENERGIES

Developing carbon-free combustion solutions for tomorrow

Fired heaters play a key role in the hydrocarbon industry. The demands on the burners in these heaters are increasing as users and regulators want to reduce their carbon footprint and require higher efficiency and more stringent NOx emission limits.

With many shapes and sizes, Technip Energies Side Wall Burners (TSWB™) are used in steam reforming, steam cracking, refining and other processes.

With more than 20,000 burners installed during the last 40 years, we have a large knowledge base about burner technology. We were the first to apply flat-flame side wall burners that direct the flame radially across the face of the refractory, creating a more even heat flux. This method improves tube life and heater on-stream time. Subsequent developments resulted in these features and benefits:

Features	Benefits
Flat-flame radiant wall design	Combustion zone expands from burner block to the refractory Uniformly distributed radiant heat flux Lower radiant tube wall temperatures
Secondary air staging	Additional capacity Low Nox
Robust design (single-burner block and use of high-grade tip materials as standard)	Reliability Low maintenance
Multi-fuel flexibility	Burner can be used for wide range of processes and fuels Instant switch from 100% natural gas to 100% hydrogen firing
Shielded fuel staging lance	Avoids overheating No coking or plugging Clean tips
Adjustable and uniform flame heat release profile	Heat release matching process requirements
Easy constructability	Versatility for new and revamp projects
Manufacturing by Technip Energies	T.EN quality control
Innovative nozzle mix design for hydrogen firing	Suitable for 0-100% hydrogen fuel firing Additional noise insulation for hydrogen firing

The features of the TSWB type burner optimize the furnace performance. Plus, in certain applications and regions, the burner can be a cost-effective replacement for expensive DeNOx systems that are based on selective catalytic reduction.

Diverse firing configurations

The Side Wall Burner is placed in a furnace sidewall (side-firing) arrangement and can be applied to different process heating applications and natural-draft, induced-draft and forced-draft (pre-heated) combustion air supply modes. While the burner is suitable for a wide range of fuel gas compositions and firing configurations, including hydrogen, it is particularly suited to retrofit projects where replacing existing burners can add capacity and reduce NOx emissions.

A side-firing arrangement can be combined with our Large Scale Vortex (LSV™) burners for various process heating applications, fuel compositions (refinery fuels) and common burner firing configurations.





Burner tip

Research and development

We continuously research the performance of our Side Wall Burners in a radiant firebox environment such as an ethylene furnace.

We have also developed a low NOx version of the Side Wall Burner.

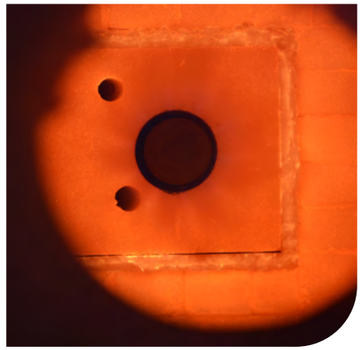
Our combustion experts continue to develop the burner at the T.EN burner test facility in The Netherlands. Please see our flysheet Technip Energies burner test facility.

Technip Energies applies its TSWB type burner for 100% firing of hydrogen. Substituting methane or other fuel gases by 100% hydrogen avoids direct CO_2 emissions and is one of the ways to advance the energy transition towards a wide application across many industries to replace hydrocarbon-based feedstock with clean-burning hydrogen.

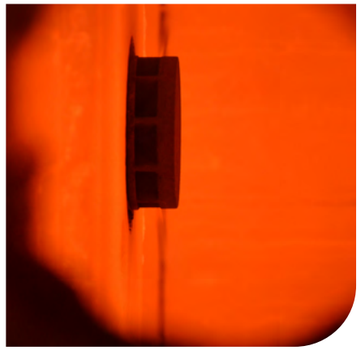
TSWB installed in cracking furnace



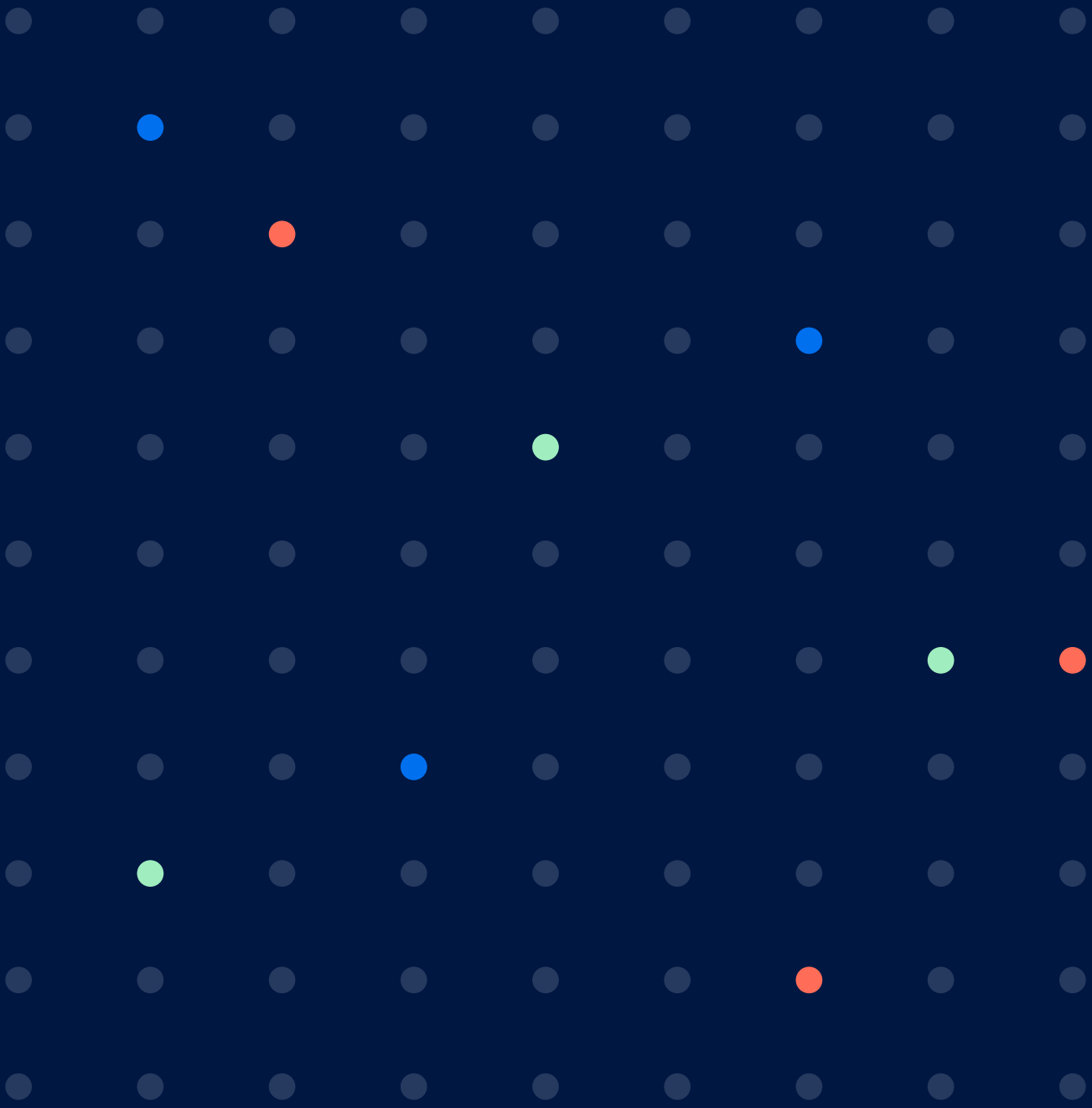
TSWB test furnace



TSWB front view



TSWB side view



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